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## THE SOUTH AMERICAN RODENTS OF THE GENUS NEOTOMYS

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CURATOR OF MAMMALS

The Andean rodent *Neotomys* was discovered more than fifty years ago, but few specimens of it have been recorded. All references to specimens have been published by Oldfield Thomas and were based on material in the British Museum (Natural History). In 1932, Dr. G. H. H. Tate published a taxonomic history of the genus with some remarks upon its relationships. A series of twenty-three specimens in museums in this country is the basis for this general review of the genus.

*Neotomys* was established by Thomas in 1894, for the new species *Neotomys ebriosus*. The description of the species was based on a spirit specimen collected by J. Kalinowski in the "Valley of Vitoc, E. Central Peru," in the Department of Junin. Thomas recorded another specimen in 1900, collected at Galera by P. O. Simmons, and in 1926 reported three others from Hacienda Atocsaico, Junin, collected by R. W. Hendee, at which time he gave the type locality as "Vitoc, Chanchamayo River-system."

A second species, *Neotomys vulturinus*, described by Thomas in 1921, was based on five specimens collected by Emilio Budin in the "Sierra de Zenta, altitude 4500 m., a range of mountains running north and south along the eastern edge of the Tilcara Department," province of Jujuy, Argentina. In 1926 he recorded five more specimens of this species from Sama, Bolivia, and referred to others from Aconquija, Catamarca, Argentina. In all, Thomas recorded five specimens of *ebriosus* and ten or twelve of *vulturinus*.

Various expeditions sent by Chicago Natural History Museum to Peru have collected nine specimens of this genus. For the loan of fourteen others, I wish to thank Dr. G. H. H. Tate, American Museum of Natural History, New York; Miss Barbara Lawrence, Museum of Comparative Zoology, Cambridge; and Mr. A. J. van Rossem, University of California, Los Angeles. This material

represents a number of new localities for the genus, some north of Vitoc and others from the Lake Titicaca region of Peru and Bolivia.

Thomas stated that the "really nearest ally is probably *Sigmodon*" but went on to say that even *Sigmodon* was very different in many characters. He recognized a possible affinity to *Reithrodon* in the grooving of the incisors, but his only specimen of that genus had molars too worn for comparison.

Tate found a number of characters showing relationship to *Reithrodon*, particularly the "1. Peculiarity of the anterior palatal foramina. 2. Strongly narrowed and furrowed palate. 3. Forward projecting spinous process of zygomatic plate. 4. *Cricetus*-like molars." He also found that the two genera diverged in other characters.

A comparison of *Neotomys* with *Sigmodon peruanus*, *Reithrodon typicus*, and *Euneomys cuniculoides* suggests that it is probably more closely related to *Reithrodon* than to the other genera, as shown in the following table:

	<i>Neotomys</i>	<i>Reithrodon</i>	<i>Euneomys</i>	<i>Sigmodon</i>
Grooved incisors.....	x	x	x	—
Short palatal foramina.....	x	—	—	x
Expanded nasals.....	x	—	—	x
Parallel-sided interorbital region.....	x	x	x	—
Parallel zygomatic arches.....	x	x	—	—
Spinous process on zygomatic plate.....	x	x	—	x
Pattern of M <sup>3</sup> .....	x	x	—	—

Thomas described *vulturinus* as a full species only because it was separated by such great distance from *ebriosus*. Now that ranges of the two species have been found almost to border one another on the Peruvian-Bolivian highland, *vulturinus* should be considered a subspecies of *ebriosus*.

### Genus *Neotomys* Thomas

*Neotomys* Thomas, Ann. Mag. Nat. Hist., (6), 14, p. 346, 1894; Gyldenstolpe, Kungl. Svenska Vet. Akad. Handl., (3), 11, No. 3, p. 82, 1932; Tate, Amer. Mus. Nov., No. 583, p. 1, 1932; Ellerman, Fam. Gen. Rodents, 2, p. 457, 1941.

### *Neotomys ebriosus ebriosus* Thomas

*Neotomys ebriosus* Thomas, Ann. Mag. Nat. Hist., (6), 14, p. 346, 1894; (7), 6, p. 299, 1900; (9), 17, p. 317, 1926.

The original description, based on a spirit specimen, gave the color as "grizzled greyish brown. . . . Belly-hairs plumbeous

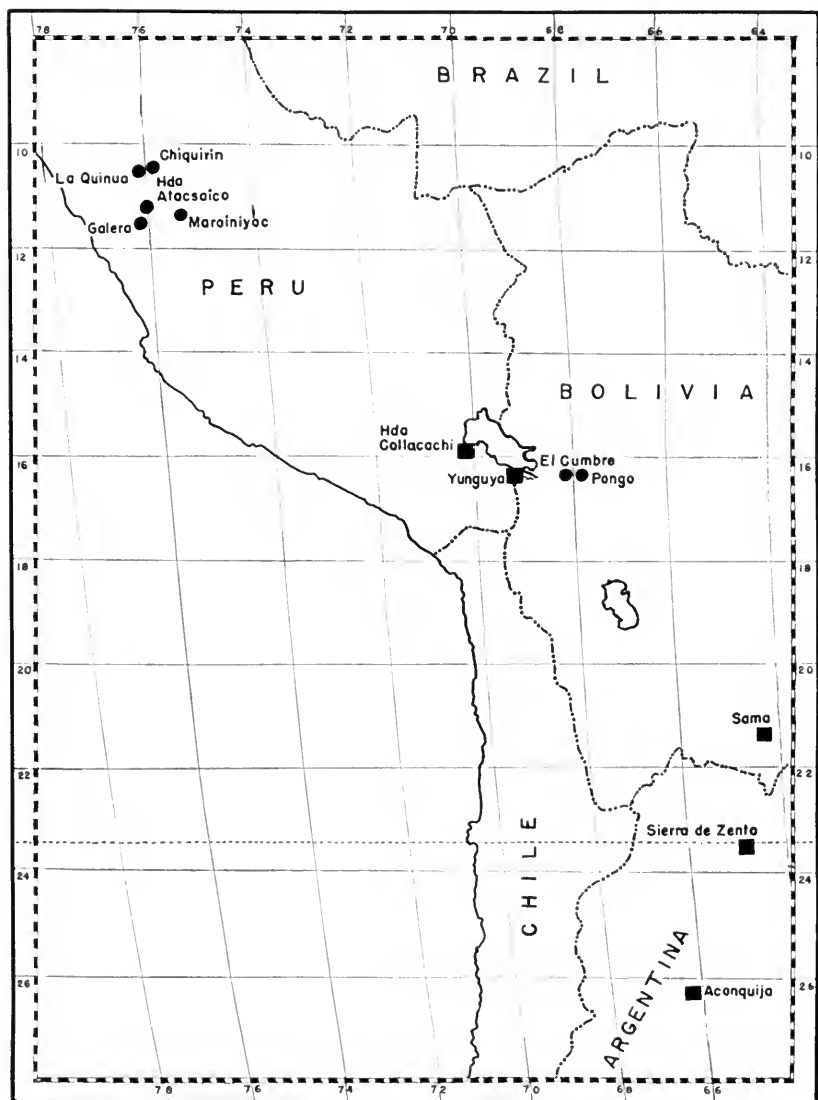


FIG. 5. Known distribution of *Neotomys ebriosus ebriosus* ● *N. e. vulturinus* ■  
Drawing by Norma Lockwood, Staff Illustrator.

basally, white terminally. Upper surfaces of feet dirty white with a tinge of cinnamon. . . . Tail rather shorter than the body, bicolor, the upper surface blackish, the sides and lower surface white." In 1900 this was amended by the description of a skin which "shows that the under side of the tail is not white but dull buffy, and the chest is a dirty brownish, a color that runs backward a short distance along the centre of the belly." The only specimen for which measurements were given was the type, in which the tail measured 61 mm.

Two specimens in the series under discussion in this paper are from Marainiyoc, Vitoc Valley, and are considered topotypical. In one the tail is brown above and grayish below, the feet with a tinge of buff and the toes gray. In the other the feet are gray with a touch of reddish brown on the ankles, and the tail appears very gray from the presence of many white-tipped hairs. Each has a narrow brown line running down the chest, and this line is present to a greater or less extent in all examples of the genus.

From the hills north of and below Cerro de Pasco is one specimen from La Quinua (11,600 feet) and four from Chiquirin (11,200 feet). These are all lighter than the Marainiyoc specimens, being browner and less black above and buffy instead of grizzled gray below.

A series of nine from Bolivia, two from El Cumbre (15,200 feet), and seven from Pongo (12,000 feet), localities in the mountains east of La Paz, agree very closely with the topotypes. The feet of most of the series are tinged with buffy or reddish buffy and the tails are almost black above, while in some there is a faint black line on the middle of the under side.

The skulls and teeth of all these specimens agree with those of the topotypical examples. The series from La Quinua and Chiquirin appears to have slightly more rounded bullae.

The subspecies *ebriosus* is uniform in color and skull characters throughout its range from central Peru to northern Bolivia with the exception of lighter-colored individuals with buffy under parts.

### ***Neotomys ebriosus vulturinus* Thomas**

*Neotomys vulturinus* Thomas, Ann. Mag. Nat. Hist., (9), 8, p. 612, 1921; (9), 17, p. 322, 1926—Sierra de Zenta, alt. 4,500 meters, province of Jujuy, Argentina.

When Thomas described *vulturinus*, he stated that it differed from *ebriosus* only "in having a longer tail and a paler general colour, while the greyish fore-back is less strongly distinguished from the

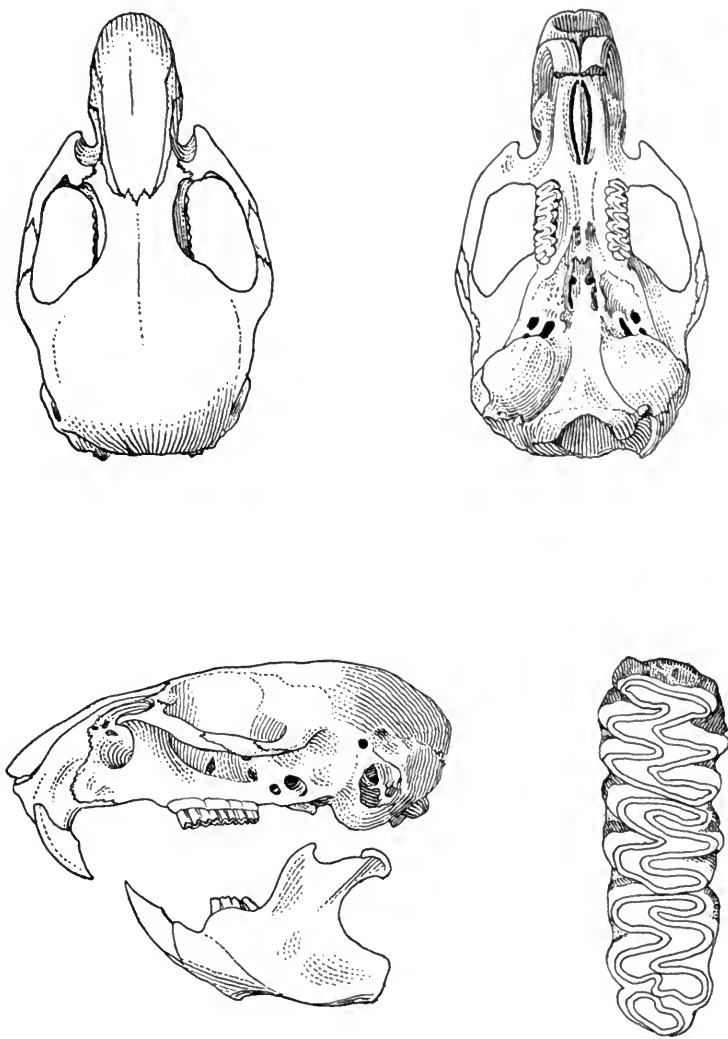


FIG. 6. Skull of *Neotomys ebriosus ebriosus* from Chiquirin, Peru. Skull about  $\times 2$ ; upper molar series about  $\times 8$ . Drawing by John C. Hansen, Staff Artist.

buffy rump, the underside is a duller grey, less whitened on the sides of the belly, and without the dark sternal band. . . ." In 1926 Thomas, in reporting specimens from Bolivia, again mentioned the length of the tail, giving it as 88 mm.

In three topotypes and the adults from southern Peru the tail measures from 72 to 80 mm. in length, while in specimens of *ebriosus* it ranges from 74 to 88. Thomas also stated that *vulturinus* lacked the brown sternal band, and it is much less pronounced, being but faintly visible in two specimens. One of the topotypes is slightly darker and brownish below instead of grayish. The brownish underside is correlated in the dark *ebriosus* with lighter upper parts and in the light *vulturinus* with darker upper parts. Four specimens from southern Peru agree very closely with the topotypes that are gray below, and are identified as *vulturinus*.

The lighter color, above and below, and the absence or reduction of the brown sternal band, separate *vulturinus* from *ebriosus*. There are no differences in the skulls.

*Measurements.*—*Neotomys ebriosus ebriosus*: 8 adults. Total length 176–225; tail 74–88; hind foot 23–26. Skull: greatest length 26.1–30.7; condylo-basal length 25.5–28.7; rostral width 5.2–5.7; interorbital width 3.5–3.9; zygomatic width 15.2–17; mastoid width 13.3–14.2; width of brain case 12.6–13.4; upper toothrow 5.4–6.1.

*Neotomys ebriosus vulturinus*: 6 adults. Total length 180–210; tail 72–80; hind foot 22.4–25. Skull: greatest length 28.3–29.8; condylo-basal length 25.3–27.7; rostral width 4.9–5.5; interorbital width 3.4–4; zygomatic width 15.2–16; mastoid width 12.8–13.6; width of brain case 12.4–13.1; upper toothrow 5.5–5.9.

*Specimens examined.*—*Neotomys ebriosus ebriosus*: PERU: Department of Junin, La Quinua, 11,600 feet, 1 (C.N.H.M.); Chiquirin, 11,600 feet, 4 (3 C.N.H.M., 1 M.C.Z.); Marainiyoc, 2 (M.C.Z.). BOLIVIA: El Cumbre, 15,200 feet, 2 (A.M.N.H.); Pongo, 12,000 feet, 7 (A.M.N.H.).

*Neotomys ebriosus vulturinus*: ARGENTINA: Province of Jujuy, Sierra de Zenta, 3 (1 C.N.H.M., 2 Univ. Calif. Dickey Coll.). PERU: Department of Puno, Hacienda Collacachi, 13,000 feet, 1 (C.N.H.M.); Yunguyo, 13,000 feet, 3 (C.N.H.M.).

*Distribution and habits.*—*Neotomys* has been taken at altitudes ranging from 11,000 to 15,000 feet between 10° and 28° S. Lat. in the Andes. The range of the dark form *ebriosus* extends from central Peru south on the east side of Lake Titicaca to east of La Paz,



Bolivia. The lighter Argentine form ranges north on the west side of Lake Titicaca to the region of Puno. Careful trapping for this mammal between Junin and Puno, in Peru, and south from La Paz, Bolivia, will have to be carried on before its full distribution can be worked out.

The material that I collected in southern Peru was brought in by Indians who said they had caught the specimens in grass near streams. Budin, as quoted by Thomas (1921), stated that they were "not very abundant, and generally isolated from other rodents. More or less aquatic, living on the banks of streams and marshes, and one was caught among reeds on a little islet in a lake. Have their holes under isolated rocks on level ground, and are not found among the stony hills."

Dr. Tate writes concerning the localities El Cumbre and Pongo, where he collected nine specimens of *ebriosus*: "The location, El Cumbre, forms the divide over which the Yungas railroad crosses the Cordillera Real from La Paz to Yungas. The surroundings are open paramo with grasslands and in sheltered spots a few scattered shrubs. There are numerous tiny glacier lakes. In the rainy season snow falls each night. Pongo is somewhat lower and on the eastern side of the Cordillera. It is located downhill from the railroad terminus Unduavi in the bottom of a U-shaped glacier valley. Although very damp and mossy it is only at the edge of the tree zone. The shrubby vegetation there is much more dense than at El Cumbre. I did not notice that *Neotomys* were especially near to water."

E. Heller noted on labels of *ebriosus* from La Quinua and Chiquirin: "Caught in daytime." It has been my experience that small mammals living at cold high altitudes were not active during the dark hours, but appeared after the sun had risen.

